

Notice of Allowability

Application No.

10/649,779

Applicant(s)

SHIN, SANG-CHUL

Examiner

Art Unit

James L. Habermehl

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 16 Dec 05.
2. ☒ The allowed claim(s) is/are 1-2,4-9,11-19, and 21-26, renumbered 1-23 respectively.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

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1. This Office action is in response to amendment filed 16 December 2005, which papers have been placed of record in the file.

2. Claims 1-2, 4-9, 11-19, and 21-26 are allowed over the prior art of record. The following is an examiner's statement of reasons for allowance:

Claims 1 and 18 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling a disk drive using counter-electromotive force and a computer readable storage storing at least one program to control a disk drive using a counter-electromotive force according to a process comprising the predetermined mode is selected among a seek mode, a track following mode, a read mode, and a writ mode, as presented in the environment of claims 1 and 18. It is noted that the closest prior art, Patton et al., shows controlling a disk drive using counter-electromotive force similar to the claimed invention. However, Patton et al. fails to disclose the predetermined mode is selected among a seek mode, a track following mode, a read mode, and a writ mode as claimed.

Claims 4, 12, and 21 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling a disk drive using counter-electromotive force, a disk drive, and a computer readable storage storing at least one program to control a disk drive using a counter-electromotive force according to a process comprising calculating the predetermined threshold from a regression function corresponding to a statistical correlation between the magnitude of an external shock and the counter-electromotive force, as presented in the environment of claims 4, 12, and 21. It is noted that the closest prior art, Patton et al., shows controlling a disk drive using counter-electromotive

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force similar to the claimed invention. However, Patton et al. fails to disclose calculating the predetermined threshold from a regression function corresponding to a statistical correlation between the magnitude of an external shock and the counter-electromotive force as claimed.

Claims 5, 14, and 22 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling a disk drive using counter-electromotive force, a disk drive, and a computer readable storage storing at least one program to control a disk drive using a counter-electromotive force according to a process comprising applying the detected moving distance variation of the transducer with respect to the variation in time to a predetermined counter-electromotive force calculation equation, as presented in the environment of claims 5, 14, and 22. It is noted that the closest prior art, Patton et al., shows controlling a disk drive using counter-electromotive force similar to the claimed invention. However, Patton et al. fails to disclose applying the detected moving distance variation of the transducer with respect to the variation in time to a predetermined counter-electromotive force calculation equation as claimed.

Claim 9 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a disk drive comprising the voltage detected from the voice coil is determined according to a position error of the transducer, as presented in the environment of claims 1 and 18. It is noted that the closest prior art, Patton et al., shows controlling a disk drive using counter-electromotive force similar to the claimed invention. However, Patton et al. fails to disclose the voltage detected from the voice coil is determined according to a position error of the transducer as claimed.

Claim 13 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling a disk drive using counter-electromotive force comprising the controller further comprises a circuit to compensate signal delay between a driving signal to drive the voice coil motor and a voltage detection signal from the voice coil, as presented in the environment of claim 13. It is noted that the closest prior art, Patton et al., shows a method of controlling a disk drive using counter-electromotive force similar to the claimed invention. However, Patton et al. fails to disclose the controller further comprises a circuit to compensate signal delay between a driving signal to drive the voice coil motor and a voltage detection signal from the voice coil as claimed.

Claim 26 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling a disk drive using counter-electromotive force comprising calculating the counter-electromotive force, determining a magnitude of an external shock or a vibration by the calculated counter-electromotive force, and when the magnitude exceeds a tolerance range, controlling the disk drive into a parking or unloading mode, as presented in the environment of claim 26. It is noted that the closest prior art, Patton et al., shows a method of controlling a disk drive using counter-electromotive force similar to the claimed invention. However, Patton et al. fails to disclose calculating the counter-electromotive force, determining a magnitude of an external shock or a vibration by the calculated counter-electromotive force, and when the magnitude exceeds a tolerance range, controlling the disk drive into a parking or unloading mode as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James L. Habermehl whose telephone number is (571)272-7556. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571)272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Habermehl/jlh
30 Dec 05



DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER